

THE EVOLUTION OF THE SUPPLY CHAIN — SPOTLIGHT ON THE AUTOMOTIVE INDUSTRY

October 2015

→ Bob Heaney, Research Director
Supply Chain, Wholesale, and Retail Practices



Report Highlights

p2

The top 30% of companies surveyed are more successful, based on their ranking on four key metrics, and are also more collaborative and cloud-ready.

p3

Top-performing companies are 2.06x as likely to conduct “strategic supplier/logistics selection that is performance-based and long-term focused,” and only 26% of others can make this claim.

p6

90% of top-performing OEMs/suppliers are scrambling to produce or facilitate onboard device-to-cloud related connectivity. Most are working to get their ‘machines’ connected to the cloud — the Internet of Things (IoT).

p10

In Answering the Call, top-performing companies are addressing globalization, vehicle connectivity, and supply chain optimization across suppliers/partners by using multi-party automation and collaboration solutions.

The growth and complexity of today’s end-to-end supply chain is driving renewed focus on optimizing supply chain cost and complexities in an evolving automotive industry. Up to 92% of companies will be looking for more collaborative optimization solutions. This represents a call to action. We examine the pressures, capabilities, and best practices specific to three overarching trends impacting the automotive industry.

2

As global shifts and complexity increase the cost and relevance of the automotive supply chain, leading companies are investing and automating. They are realigning, reconsolidating, and optimizing supply chain activities.

Are you ready to Answer the Call?

The Business Case

Our recent supply chain visibility report, [Supply Chain Intelligence: Descriptive, Prescriptive, and Predictive Optimization](#) (February 2015), reveals that the pressure from growing inbound to outbound operations/complexity was the top business driver for Chief Supply Chain Officers (CSCOs). This new insight, which stems from a sample of 98 companies in the automotive industry, is comprised of either automotive original equipment manufacturers (OEMs) or suppliers/partners. Up to 92% of CSCOs connected to the automotive industry are confronted with changes in the overall level of globalization, and new complexities/vulnerabilities with device-connected vehicle technologies. There is no question that the automotive industry has seen rapid change and transformation over the past three years.

As requirements for the automotive industry continue to expand, supply chains will require systemic transformational change to address new complexity. Industry Leaders are Answering the Call by integrating supply chain processes and activities across the supply network. With more control and visibility into production delivery events and logistics cost, they can embark on changes that move beyond just reporting and develop a framework for optimization, leading to superior cost, service, and collaborative alignment with partners.

4 Key Metrics That Define Leaders

Automation Leaders (top 30%) all cite “some to high” levels of supply chain automation capability. Followers – others that fall into the bottom 70% of metrics.

1. Change in overall landed cost per unit year-over-year: Automation Leaders – 2.1% decrease, Followers – 8% increase

2. Percentage of your carriers meeting their service-level and routing compliance needs: Automation Leaders – 89%, Followers – 62%

3. Percentage of your suppliers compliant in contract: Automation Leaders – 90.6%, Followers – 70%

4. Orders complete and on time from Suppliers: Automation Leaders – 97.2%, Followers- 81%

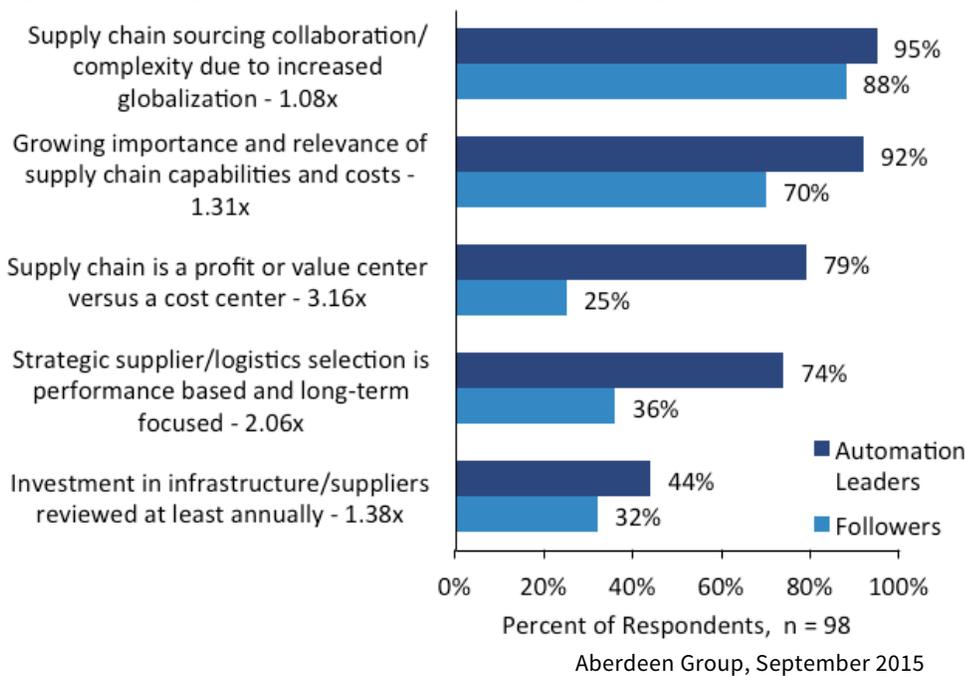
*n= 98 Automotive OEMs/Suppliers
Source Aberdeen: September, 2015*

3

Top Pressures & Priorities for the Automotive Industry

Supply chain sourcing complexity and collaboration is on the uptick due to increasing globalization (cited by more than 88% of respondents). With fuel volatility up and shifts in production capacity, enterprises are reducing the excess inventory both in storage and in transit, and are placing increased awareness (cited by 54%) on the cost and service impact of transportation, supply chain costs, and optimization with the supply base.

Figure 1: Competing Priorities and Strategic Capabilities



Closed-Loop, Multi-party Collaboration

To achieve a balance, and optimize cost and service, it becomes increasingly important to:

First, synchronize and collaborate with Tier 1 and 2 suppliers, carriers, and trading partners.

Second, pair end-to-end production and logistics costs together in a single closed-loop process.

Third, for supplier logistics and transport synchronization, utilize the closed-loop management process.

4

Top performers are 1.31x as likely to understand the growing importance and relevance of supply chain capabilities and costs.

Globalization is top-of-mind for automakers, with logistics as the enabler.

Make sure you understand logistics as a value/profit center, not a cost center.

Top-Performing Companies Collaborate to Deliver a Balance of Cost and Service

Across a complex set of competing priorities (Figure 1) and across an evolving automotive marketplace, there is a need to coordinate supply chain activities in a multi-party, dynamic fashion.

Central to successful supplier/logistics collaboration is the need to automate and institute a [closed-loop management process](#) using the steps found in the sidebar on page 3.

We define automotive companies with either Leader or Follower status according to their performance on four key metrics, as defined in the sidebar on page 2. In today's automotive supply chain, there are three overarching industry-specific trends for all of these companies:

1. Geographical shifting of the supply chain
2. New types of suppliers are entering the automotive supply chain, including telecommunications companies and technology companies like Apple and Google
3. Increased consolidation among automotive suppliers, resulting in bigger suppliers with more responsibilities

In the sections that follow, we will explore the intersection of these overarching trends with the strategic priorities found in Figure 1.

Trend #1 – The Geographical Shifting of the Automotive Supply Chain

Walk into any multinational company today, either industrial or consumer goods, and you're sure to hear a lot of discussion about the BRIC (Brazil, Russia, India, and China) markets.

The GDP growth in those countries far exceeds the growth in more fully developed economies. Further, the sheer number of consumers

5

in these countries already accounts for about 40% of the world's population. By 2050, their combined economies are expected to eclipse that of the world's richest countries — including the U.S. and European Union.

During the last five years, six global automakers — GM, Toyota, Ford, Honda, Chrysler, and Nissan — have reported the majority of their sales shifting to BRIC countries and overseas. These global automakers will still represent 75% of the world's output for the foreseeable future. But, where they produce those vehicles has, and will, shift significantly.

Global shifts are everywhere. For years, China was the go-to destination for offshore industrial manufacturing. When market conditions and costs pushed for alternate markets, Malaysia and Southwest Asia became the focus, along with India and Brazil. Russia and China have recently been in the headlines due to currency instability and even manipulation. In fact, GM recently halted expansion plans in Russia, citing concerns about currency instability and the higher Russian import tariffs, and other automotive companies are taking a wait-and-see approach.

But reshoring and nearshoring has seen resurgence as well. As China and overseas destinations of choice shift, Mexico (or Latin America) seems primed to meet U.S. manufacturers' needs — evidenced by recent relocation announcements by Ford and others. With an abundant labor pool, lower wages and energy costs, and improving truck and rail transport, Mexico has emerged as the nearshore alternative to outsourced manufacturing.

As the markets shift into new regions, and automakers determine the right markets to go into, the top-performing companies (the

6

90% of top-performing OEMs/suppliers are scrambling to produce or facilitate onboard device-to-cloud related connectivity...most are working to get their ‘machines’ connected to the cloud – the Internet of Things (IoT).

Automation Leaders in Figure 1 and defined in the sidebar on page 2) are co-locating OEM product assembly and components. Under globalization and supplier co-location and consolidations, the automotive supply chain must be treated more strategically and long-term. This means global logistics strategies and global production from supplier and manufacturing partners must be rebalanced and reengineered. Indeed, well over 88% of automakers are realigning to global shifts. Re-engineering the supply base and optimizing the supply chain is the important next step. **The Automation Leaders, at 74%, are 2.06x as likely to conduct “strategic supplier/logistics selection that is performance-based and long-term focused”** (only 36% of Followers can make similar claims, Figure 1).

As we review the significance of the priorities and trends identified in the last section, one of the biggest issues for automotive logistics is its perceived relevance. A lot of automakers still don’t realize how important logistics is; for them it’s just a cost. They don’t see it as an enabler of global manufacturing and sourcing, or as a way of increasing customer loyalty through great service. They just see logistics as a **cost to be eliminated**. Leading companies (those who perform in the top 30% on KPIs; see sidebar) have shifted from seeing the supply chain as simply a cost center. The Automation Leaders are 3.16x as likely as Followers to view the supply chain as a profit or value center, versus a cost center (Figure 1). Instead of cost-cutting, automakers should **focus on investment in infrastructure/suppliers** to make their logistics and supply chain better in the future. However, only 44% of Leaders (34% of Followers) have this investment priority today. If automakers neglect to evaluate logistics costs/service early enough, they will miss ROI saving investment opportunities. That leads to a lack of investment in logistics and the supply chain.

7

Trend #2 – New Types of Suppliers and Competitors Entering the Automotive Supply Chain

In 2014, the Internet of Automotive Things became mainstream. Device-to-cloud connectivity with the Internet of Things (IoT) is rapidly transforming the automotive industry. Now we are seeing visionary innovators like Google and Apple, as well as telecommunications and wireless providers, actively involved and deeply embedded within both vehicle supply and production environments.

The automotive industry is going to change more in the next 10 or 20 years than it has in the previous 50 to 100 from factors like external competition. Google cars and other new entrants are coming into the market and introducing self-driving cars, electric cars, and so on. Additionally, there are car-sharing schemes like Zipcar that are competing for market share. Over 80% of companies in the automotive industry believe these new participants will have a big impact, mainly by way of **increased competition**. This will lead to more cost pressures for manufacturers, and that will impact logistics.

For the automotive industry, 90% of Automation Leaders — those who find themselves in the top-performing 30% of all OEMs and suppliers — indicate that they are scrambling to *“produce or facilitate onboard device-to-cloud related connectivity”* (Figure 1). Of all 98 companies in the study, upwards of 80% in the automotive supply chain are working to get their ‘machines’ connected to the cloud — the IoT. Production equipment, logistics networks, and aftermarket service infrastructures are going online and require connection to a common enterprise platform to allow information flows to be analyzed and acted upon. Every car

Top-performing companies are 2.06x as likely to conduct “Strategic Supplier/Logistics selection that is performance-based and long-term focused,” and only 26% of others can make this claim.

Upwards of 80% in the automotive supply chain are working to get their ‘machines’ connected to the cloud — the IoT.

8

The automotive industry is going to change more in the next 10 or 20 years than in the previous 50 to 100 from factors like external competition. Google cars and other new entrants are coming into the market with self-driving cars, electric cars, and so on. Additionally, there are car-sharing schemes like Zipcar that are competing for market share.

manufacturer will begin to offer a “connected car” within their respective range of vehicles, and this will add additional complexities and vulnerabilities.

New Vulnerabilities, Threats, and Regulatory Change

The benefits and complexities of integration with the new players and telecommunication technologies have introduced new vulnerabilities, as highlighted by several recent events below:

- **The Sprint and Harmon partnership with Fiat Chrysler led to a recall of 1.4 million vehicles to prevent telco Wi-Fi network hacking.** Two testers accessed the ‘connected smart car system,’ hijacking basic functions and remotely stopped the demonstration car from miles away.
- **Takata airbags defects led to 139 deaths and shrapnel-shooting inflator incidents across the globe.** Approximately 34 million vehicles are potentially affected in the United States, and another 7 million have been recalled worldwide.
- **Over 70% of connected car companies are concerned with competitive threat.** Daimler and Volkswagen admit they need Apple and Google as partners, but these Silicon Valley companies also pose significant threats as suppliers and as direct competitors.

Apple's current automotive offering is CarPlay, which projects iPhone navigation, music, and messaging apps onto a car's navigation screen. However, Apple poses a much bigger risk and is believed to be developing a better self-driving car than Google, as well as a better electric car than Tesla Motors.

These new complexities, threats, and vulnerabilities have led to increased regulation. The automotive supply chain from the OEM

9

through the extended supplier ecosystem will be impacted directly in two ways:

- ➔ **Regulatory challenges and opportunities.** Evolving government policies and regulations such as the GST regulations on recall management and sustainability initiatives will continue to affect the supply chain. The industry needs to be prepared to invest in and redesign its supply chain to drive efficiencies and conform to any legislation that focuses on recall management and sustainability.
- ➔ **Self-driving and electric cars and other connected vehicles will also have very profound effects on the extended business ecosystem of suppliers and partners.** Regulatory compliance and complexities extend to Tier 1 and 2 manufacturers who supply components, including alternators, tires, seats, and anti-lock braking systems. Value chain impacts require evaluation and span component production, manufacturing, distribution, and servicing. The scope extends across other industry verticals such as cars and smartphones.

Trend #3 – Increased Consolidation Among Automotive Suppliers, Resulting in Bigger Suppliers with More Responsibilities

As automakers realign their markets and supply chains, there are ongoing mergers, acquisitions, and consolidations occurring.

OEMs are now evaluating their suppliers not only on the basis of near-term price and long-term cost reduction programs, but also on their corporate stability, product design, and production engineering capabilities.

Modularization

Lately, OEMs have focused extensively on modular platforms, which allow customized solutions for product deviations without adding complexity. In particular, modularization is a focus area for commercial vehicle automakers, which are rapidly moving toward providing customers the option of choosing customized features for the powertrain, chassis, and interiors when an order is placed.

This made-to-order approach requires cascading the modular design all the way to manufacturing and key tier 1 suppliers.

10

Optimization is Key – Addressing Cost and Service Across Priorities

The top performers (top 30% on KPIs) are more likely to optimize across Strategic Priorities:

- **3.16x** as likely to consider the supply chain as a profit or value center versus a cost center
- **2.06x** as likely to conduct strategic supplier/logistics selection that is merit & long-term based
- **1.38x** as likely to support Investment in infrastructure/suppliers reviewed at least annually
- **1.31x** as likely to understand the growing importance and relevance of supply chain capabilities and costs
- **1.08x** as likely to automate supply chain sourcing, collaboration, and complexity under increased globalization

Automakers also judge suppliers on the downstream management of their own supply chains, delivery reliability, willingness to locate plants in close proximity to the OEMs, and participation in the assembly process.

Automakers are also changing the way they manufacture — moving to a modular assembly model, where suppliers provide full modules — such as dashboard assemblies — rather than individual parts to the production line. Global modularization is defined by late-stage product customization. These major design shifts place more responsibility on the supplier and are key to strategic supplier selection and consolidation decisions by the OEMs. The move to modular assembly means that many sub-assembly processes occur outside the OEM manufacturing plant, often at supplier facilities. This trend, in turn, drives up complexity for Tier 1 suppliers providing these sub-assemblies, and it impacts and elevates the magnitude and risk associated with design vulnerabilities and product recalls. These challenges are best mitigated by working closely and collaboratively with suppliers — particularly in growth markets like India.

As we indicated earlier, Automation Leaders are 2.06x as likely to conduct strategic supplier/logistics selection that is performance-based and long-term focused. This becomes even more critical as supplier consolidations introduce design dependencies, and modular assemblies become an even bigger factor in today's market.

Key Findings and Recommendations

When we look at performance across the four different KPIs, both cost- and service-related, the Automation Leaders (see sidebar on page 4) are doing a better job.

Whether it's regarding the number of suppliers or partners compliant to contract and meeting their SLAs, or the improvement in total landed costs per unit, the Automation Leaders are pointing the way

11

and delivering a better balance of cost and service across the competing priorities they face in an evolving automotive industry.

In this report, we studied three overarching trends that are directly impacting the automotive supply chain.

We then discussed how each of the three macro-economic trends impact the automotive supply chain — forming a mandate for optimization and transformation, resulting in a call for action:

In Answering the Call, top-performing companies are addressing globalization, vehicle connectivity, and supply chain optimization across suppliers/partners by using multi-party automation and collaboration solutions.

By studying the intersection of the priorities with superior results on four key metrics, we can correlate the automation/collaborative capabilities of the Automation Leaders in the sample of 98 automotive companies. The Automation Leaders are anywhere from 1.08x to 3.16x as likely to focus on capabilities across these priorities (see sidebar page 10).

By having a more automated and collaborative set of priorities, shared investments, processes, and systems, the Automation Leaders are evolving by optimizing their automotive supply chains and delivering better results.

12

For more information on this or other research topics, please visit www.berdeen.com.

Related Research

[Omnichannel Retail Mobility: Align Merchandising, DC & Store Logistics](#); October 2015
[5 Key Steps to Build a Cloud-ready Supply Chain for your Organization](#); September 2015
[Answer The Call: 5 Process Steps for B2B & B2C Convergence](#); July 2015

[Strategic Sourcing and Segmentation Prescriptive Control Tower Approach](#); April 2015
[Supply Chain Intelligence: Descriptive, Prescriptive, and Predictive Optimization](#); February 2015
[Supply Chain Visibility and Segmentation: Control Tower Approach](#); August 2014

Authors: Bob Heaney, Research Director Supply Chain & Retail Practices (bob.heaney@berdeen.com)

About Aberdeen Group

Since 1988, Aberdeen Group has published research that helps businesses worldwide improve their performance. Our analysts derive fact-based, vendor-agnostic insights from a proprietary analytical framework, which identifies Best-in-Class organizations from primary research conducted with industry practitioners. The resulting research content is used by hundreds of thousands of business professionals to drive smarter decision-making and improve business strategy. Aberdeen Group is headquartered in Boston, MA.

This document is the result of primary research performed by Aberdeen Group and represents the best analysis available at the time of publication. Unless otherwise noted, the entire contents of this publication are copyrighted by Aberdeen Group and may not be reproduced, distributed, archived, or transmitted in any form or by any means without prior written consent by Aberdeen Group.